The Communicator

A Publication Of The Surrey Amateur Radio Club

Also…

All About NVIS!

SARC

September 2017

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The **Communicator** is a publication of the Surrey Amateur Radio Club. It appears monthly, except July and August, for area Amateur Radio operators, to enhance the exchange of information and to promote local ham radio activity.

To subscribe, unsubscribe or change your address for e-mail delivery of this newsletter, notify **communicator @ ve7sar.net**

Regular readers who are not SARC members may contribute a $5 annual donation towards our Field Day fund.

SARC maintains a website at **www.ve7sar.net** and an Digital Communicator at **ve7sar.blogspot.ca** that includes recent news, past issues of The Communicator, club history, photos, videos and other information.

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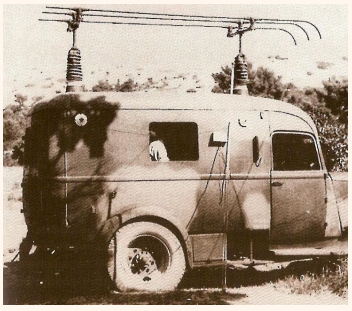
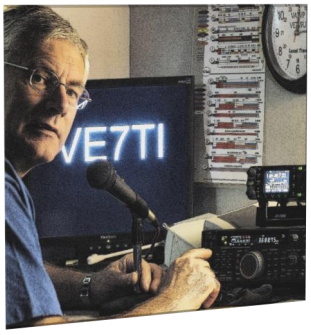


On The Cover…

We have updated the 'look' of the Communicator cover for the new season, hope you like it.

This was a Field Day with a first. Jeremy VE7TMY brought his drone and captured some fascinating video of the site (see http://tinyurl.com/SARC-FD-Drone). This is a photo from the video showing 'Bigfoot', our mobile tower, extended to almost its full 105 foot height. More on Field Day starting on page 34.



QRM

...from the Editor's Shack

Do you have a photo or bit of club news to share?
An Interesting link?

Something to sell or something you are looking for?
eMail it to communicator @ ve7sar.net for inclusion in this column.

We're back! You'll probably see a few changes in the Communicator this month. They say a change is as good as a rest, well… we'll see. This is my 8th year as editor and I need some variety too, to keep me interested. Hopefully it's getting better.

I depend on a lot of other people to keep the content current and worthwhile every month—thank you to those I can rely upon for contributions and feedback.

The hunt for material is an-ongoing challenge. Other newsletter publishers tell me they have the same challenges, but local club newsletters are becoming quite scarce. It is surprising to me that few local clubs provide good information about our hobby or their activities, that they are willing to share.

I'm willing to fill this void where feasible. If there is local club news, an interesting article or tidbit, please pass it along and if suitable I will publish it for the benefit of our Amateur Radio readers throughout the Lower Mainland and beyond—and the beyond now includes regular readers in most regions of the globe.

Aside from some excellent locally written material, I subscribe to numerous Amateur Radio newsgroups and filter out what is pertinent, unusual or interesting for our readership. Sometimes you come upon a pearl that is too good to pass up, like the story about Sealand *(page 6)*. I have found that most outside authors are quite willing to share their work, although occasionally its impossible to find the original author or the material is open source. I always give credit when I can find the origin and send an email to confirm their willingness to have their material appear here.

***

This month a shout-out is appropriate for Arthur Siemens VE7SIE and Nicole Stopa VE7PET. Both have spent a great deal of their summer assisting Salvation Army with Reception Centre operations in Cloverdale for the forest fire evacuees from the interior. Thanks to both of you. Well done!

***

We understand that Jinty Reid VA7JMR had a recent stay in hospital after some heart related problems. She is at home now recovering. We wish her a speedy return to good health.

On the Web

ve7sar.net

Between newsletters, watch your e-mail for news, announcements of Amateur Radio events, monthly meetings and training opportunities.

Click the links below to follow our presence on the web:

SARC Blog
ve7sar.blogspot.ca

Twitter
@ve7sar

FaceBook
SurreyAmateurRadio

Our YouTube Channel
SurreyARC

SARC Photo Albums
Web Albums
or
tinyurl.com/SARCphoto

Technology may never come up with a better communication system than the coffee break

Antenna Adventures

Robert Fishwick VA7FMR

More About Antennas, And How To Hide Them

This type of antenna works well mounted high as a dipole or low as an NVIS antenna for emergency use. See this month's SEPAR Report for an article on NVIS antennas. -Ed.

Last time, I told you of my costly experiences trying to install an antenna on my patio. Like many people, I live in an apartment and the Management of most complexes have rules regarding what can and can not be placed on the patio. My apartment Management is no exception. In the previous article, I mentioned the high cost of antennas that claimed super abilities but failed to perform as claimed. I now know, to my cost, that a long wire antenna is about the best you can get but not apartment patio friendly. During one of my recent searches on the NET for an antenna that will work at my apartment, (Yes, I am still searching) I found an item about a fellow that was using two reasonably affordable car antennas assembled as a center fed dipole. At the next Kalmar Saturday morning coffee meeting (which you should try to attend) I mentioned it to one of the other club members. Low and behold, he mentioned that he had built one using 'HamStick' antennas and it performed in a very satisfactory manner. When taken apart, which takes only a few minutes, it is very light and very portable. He mentioned that he was not, at the moment, using it. Would you like to borrow it for a while? As this was my first opportunity to "Try before I buy" I jumped at the chance and arrangements were made to pick up the antenna at his earliest convenience. I arrived home at about mid day and was soon out on the patio deck fixing the mount to my portable mast. The mount has two studs instead of the usual one. One stud is the type that grounds itself to the mount and the other faces in the opposite direction and is of the usual coax connector type. The antennas themselves are the MFJ HamStick types, a 48" fiber glass rod wound with the appropriate wire coil for the band you wish to work. They are available for the common Ham bands, and in my case, it was wound for 20 meters. There is a 48" wire whip that is inserted into the end of the fiber glass rod and is moved in or out to tune the SWR of the frequency you are using. My friend had very conveniently marked the spot to where the two whips should be inserted, which made it very easy for me to get things up and running. I soon realized that a horizontal dipole can be rotated just like a beam antenna, My patio is about 12 feet wide and the assembled antenna is about 16 feet long so only 4 feet of the second whip extends from the end of my patio. My patio faces East so I rotated the antenna to face about South of East.

Grounded stud

Insulated stud & coax connector

Since a dipole is Balanced and Coax is Unbalanced, a 1 to 1 Current Balun should be used at the antenna end of the coax or RF will migrate down the Coax braid and could cause painful RF burns to the hands or fingers and create havoc with Computers, TVs and other electronic gear in the room.

I soon had the Coax connected to my radio and I found that the SWR was no more than 1.5 to 1 across the 20 Meter band. With little hope of success, I turned on my radio and started to tune up the 20 Meter band. Suddenly, my speaker loudly announced a CQ call. The caller informed those he hoped were listening that he was located 25 miles North of Cincinnati in the State of Ohio. I answered his CQ call but to my disappointment, he answered another caller. I looked at my power output and found that it was set at only 50 Watts. I hurriedly increased to 100 Watts, to be ready for my next call. Again, to my surprise before I could repeat my call, he said, "I now have VA7FMR" so he had heard me after all, on only 50 Watts. He was not calling in a contest so we had a great chin wag and he was very surprised that I had called on a whip dipole with only 50 Watts. My next contact was a CQer in Hawaii.

2 Hamsticks as a dipole

So, for about $150 Canadian you too can have a great dipole Antenna on your Patio that you can rotate as much as your patio permits and no one will notice. I have been using this antenna now for about 2.5 weeks and I have spoken to the apartment Manager and he has not mentioned that he had even noticed the antenna. Non of my neighbors have mentioned it, nor have they made any complaints. Since you already have the mount and other gear, all you need to change bands is another two Stick antennas for say 40 Meters and it would only take a few minutes to change bands. I have an antenna tuner so thought that I would try 10 meters and it worked like a charm. I then tried the antenna tuner on the 40 meter band, again with great success. When you are tuning the antenna, tune it for the lowest SWR on the center frequency of the band you are working. That should give you a decent SWR all across the band.

In another article I wrote regarding the purchase of equipment and the need for caution when selecting suppliers, you may remember the sound card that I purchased because it sounded so good on the manufacturers Web page and after it was purchased found it impossible to set up because of the lack of information from the manufacturer. His after sale service was equally bad since he provides non and would hang up the telephone if you asked a question about something not covered in his so called manual. I must admit that parts of the above problems were because of my inexperience and lack of knowledge of the setup procedures of software such as MMTTY, N1MM+ and FLDIGI. There are dozens of settings in each of these pieces of software and since they are used together, if you make a mistake in one of them, the whole FanDagle does not work. My experience setting up a SignaLink sound card has given me hope that I may yet get that $275 boat anchor working. I have had success using it for CAT control and a degree of success with CW. My next adventure will be integrating MMTTY with FLDIGY and getting digital to work on it. The most difficult part of my entry into the World of Amateur Radio has not been with the radio equipment that I use, it has been the computer software that actually controls the radio and the sound card and the integration of the three, computer, Radio and sound card. Of course, without an antenna, nothing would work. If there is one piece of advise that a greenhorn like myself could pass on to you, it is, "Never give up" I have spent literally days on the internet and gleaned tons of information that has allowed me to improve my knowledge and understanding of many things in this great Hobby of ours. I hope you learn to enjoy it as much as I do!.

~Robert VA7FMR

Purchasing? Try:

https://radioworld.ca/mfj-347

http://www.americanradiosupply.com/ham-sticks/

or ebay.ca, amazon.ca etc.

The Rest Of The Story…

Gerben A.Menting PG5M

DX? The Remarkable Story Of Sealand

…Roy declared the Principality of Sealand. The founding of this country was marked by the raising of a newly designed flag

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There are people in our radio community that are always on the lookout for possible new DXCC entities. One famous amateur that has been successful in a number of cases is Mart Laine, OH2BH. Even with clear rules, you will encounter situation where it is not always that clear or a mater of interpretation of the rules. However, there is also a category of cases where it is rather obvious that it will not become a DXCC entity but still some operations that take place from these odd locations. One such case is the Principality of Sealand that was activated by a group of Germans. However, the history of this place is rather interesting to learn about.

Sealand

The World War Two Thames Navy forts where the first to be set in place in the North Sea at the time known as Fort U1. Designed by Guy Maunsell the fort was put in place on the Rough Sands to guard the approaches to the Thames Estuary and the entrance to Harwich harbor, some eight miles away. Maunsell used a ground-breaking design that allowed the 4500-ton forts to be towed on a concrete barge from Red Lion Wharf in Gravesend by three tugs, ready to be sunk into positon. On February the 11, 1942 the Navy sunk them in place.

The British government built these Fortress islands in the North Sea to defend its coasts from German invaders and were housing sometimes 120 seamen, in the hollow concrete towers. Some of these forts were built illegally in international waters. One of these illegal Fortresses, consisting of concrete and steel construction, was the famous HM Fort Roughs or also called Roughs Tower, situated slightly north of the estuary region of the River Thames, on the east coast of the United Kingdom. In contrast to the original plan to locate the tower within the sovereign territory of the UK, this fortress was situated at a distance of approximately 7 nautical miles from the coast. This is more than double the then applicable 3 mile range of territorial waters. To put it briefly, this island was situated in the international waters of the North Sea.

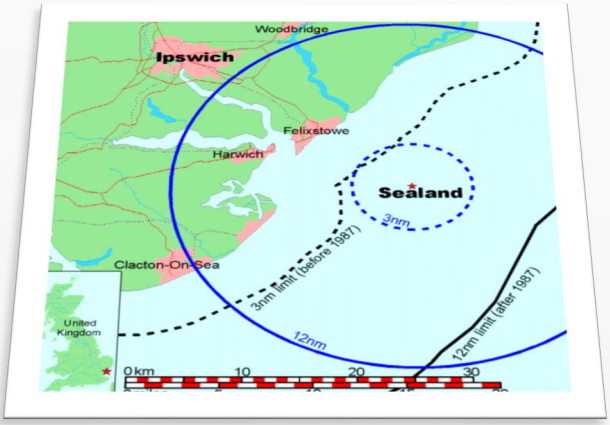
The forts were abandoned in the early 1950's and, due to their illegal construction in international waters in a

time of world crisis, they should have been destroyed, to comply with international law. Except for the aforementioned fortress, similarly located fortresses were subsequently pulled down. The result of this was the portentous uniqueness of the fortress. Fort Roughs Tower, situated on the high seas, had been deserted and abandoned. From a legal point of view, it therefore constituted extra-national territory.

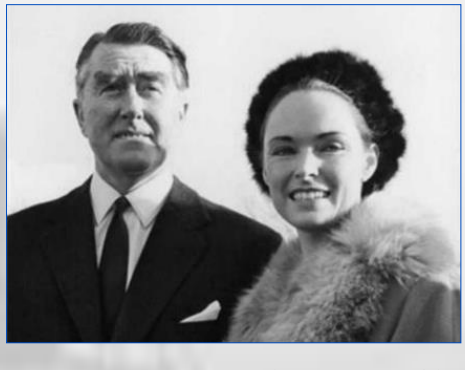
The birth of Sealand

In the early 60's, Roy Bates, a Major in the British army, established a radio station, situated offshore on an abandoned ex naval fort named "Knock John". The theory behind this location was an attempt to bypass the draconian broadcasting restrictions of the time, which permitted little more than formal broadcasting by the BBC. Roy's station, "Radio Essex", and others like it, were known affectionately by the media as “Pirate” radio stations, and were much loved by the British public, as they supplied everything that the BBC did not at the time, Pop music and amusing presenters. In the years that ensued, Roy fought an unsuccessful legal battle with the UK government, which questioned the legality of his occupation of said fort. It was ruled that "Knock John" fell under UK jurisdiction. Smarting from his setback with Knock John, Roy weighed his options. Roughs Tower, identical in construction to the Knock John existed further offshore, and crucially, outside of the three mile limit to which the UK jurisdiction extended.

Then two rival entrepreneurs competed for possession of Roughs Tower, as it was the perfect place (since it was outside the three-mile zone that then constituted British territorial waters) from which to broadcast pop music to a grateful generation of teenagers. The piratical pair were the long-haired Irish chancer Ronan O'Rahilly, of Radio Caroline fame, and Roy Bates. Each time one of them put men on Roughs Tower, the other would send people to eject them, sometimes forcibly. It was a question of who was prepared to go further, and the answer turned out to be the Englishman. For Bates, the solitary fortress became far more than a radio project. It became an obsession that would absorb not only his life, but also the lives of his wife and children. Finally Roy Bates put his 14-year old son, daughter and wife on the fort to ensure ongoing presence.



Roy proceeded to occupy Roughs Tower, on Christmas Eve 1966, with the intention of revitalizing his dormant radio station. This was until he conjured a different plan entirely. After consulting his lawyers, Roy decided to declare this fortress island the independent state of friends and followers, Roy declared the Principality of Sealand. The founding of this country was marked by the raising of a newly designed flag, and in an extremely romantic birthday gesture, the bestowing of a new title on his beloved wife, to be know from that moment on as “Princess Joan”.



Prince Roy and Princess Joan of the Principality of Sealand

Inital challenge to Sealand's sovereignty

It was not long before the British Government decided they could not have what ministers described as a possible "Cuba off the east coast of England". The military were promptly dispatched to destroy all other remaining forts located in international waters. The Bates family looked on as huge explosions sent the massive structures hurtling hundreds of feet in the air and twisted and buckled debris floated past Sealand for days. Helicopters that had carried the explosives buzzed menacingly above, and the navy tug carrying the demolition crew passed close by our fortress home and

This article appeared in the Dutch Kingdom Amateur Radio Society (DKARS) magazine, August 2017 issue. Its free, an excellent read and has a number of articles in English.

www.dkars.nl

It was hard to get a team together…

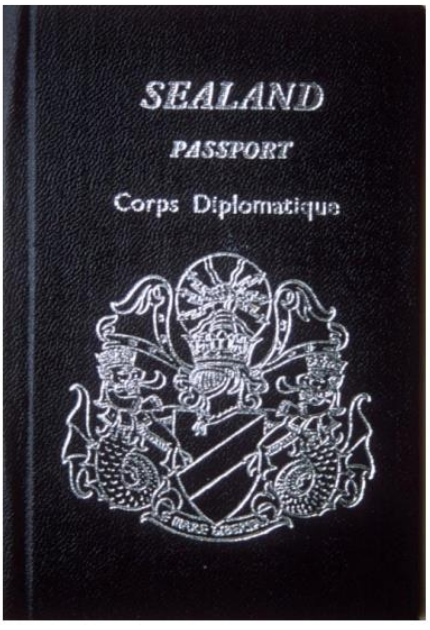
shouted "You're next!" with an angry waving of arms. A while later a government vessel steamed to within fifty feet of Sealand, its boisterous crew shouting threatening obscenities at Michael, and his sixteen year old sister. Warning shots were promptly fired across the bow of the boat by Prince Michael, causing it to hastily turn and race away towards the UK, amongst a large cloud of black engine smoke.

Since Roy was still a British citizen, a summons was issued under the UK " firearms act". On the November 25, 1968, Roy and Michael found themselves in the dock of the Crown court of Chelmsford assizes in Essex. There was much argument, and laws dating back to the 17th century were called upon. The judge concluded that "This is a swash buckling incident perhaps more akin to the time of Sir Francis Drake, but it is my judgment is that the UK courts have no jurisdiction." This was Sealand's first de facto recognition.

Over the years, Bates has poured millions of his own money into Sealand and has written a constitution, composed a national anthem, created stamps, minted coins, and issued passports. Since then, England has ignored Sealand, leaving the sovereignty to its own covert under-takings, which include pirate radio and alleged criminal activity. Though the late Andrew Cunanan, the accused killer of fashion designer Gianni Versace, is probably the most notorious "citizen" of Sealand, and at least 50 people were suspected of arms tracking, drug smuggling and money laundering activites using passports supposedly issued by Sealand. Embassies throughout South America, the Middle East, and Africa recognized the passports. Bates denies any involvement in these activities. Because of the massive number of passports that had been issued by Sealand in circulation (estimated at 150,000), in 1997 the Bates family revoked all Sealand passports, including those that they themselves had issued over the previous 22 years.

Years later, in 1978, German and Dutch "raider-businessmen" kidnapped Bates' son, Prince Michael, in an attempt to gain control of the man-made island. Prince Roy counterattacked, calling the intruders "prisoners of war." Despite pressure by Germany to intervene, British authorities again declared Sealand outside its jurisdiction, staying out of the

The official flag, the royal coat of arms (says "E Mare Libertas" or "from the sea, freedom."), coins and passport.



The author's personal collection of Sealand memorabilia.

dispute and leaving the raiders to be rescued by German diplomats.

On the afternoon of June 23, 2006, the platform caught fire and all personnel was rescued by the Royal Air Force. In 2007, The Pirate Bay attempted to purchase Sealand because of the harsher copyright measures in Sweden. Early 2012, Vox News breathlessly reported legal troubles by Pirate Bay putting its servers on Sealand. It sounds perfect for WikiLeaks: a friendly, legally unassailable host with an anything-goes attitude. From 2007-2010, Sealand was for sale with a price tag of Euro 750 million. In 2009 a German man who named himself King Marduk I declared that he had claimed Sealand as part of his own nation, the Kingdom of Marduk.

From 2000 to 2008, a company called HavenCo, CEO Sean Hastings, did indeed offer a no questions-asked data center co-location on Sealand—and it didn't end well. At a time when governments were creating new laws to control and police the Internet, Havenco — complete with its own armed guards, radar defense and its own passport control — hoped its new home might prove as popular as offshore tax havens. Earnest American computer technicians have flocked to Sealand's shores, preparing to install millions of dollars worth of computer equipment designed for clients who want their transactions and e-mail free from outside interference and investigation. Customers would buy servers or space on servers housed deep within the support legs of the former military bunker's platform.

On October 9, 2012 Roy Bates died at the age of 91 after suffering from Alzheimer's disease for several years. He was succeeded by his son Michael. On March 15, 2016 It was announced that Joan Bates, wife of Roy, died on March 10th, at the age of 86 in a nursing home in Essex.

Amateur radio operation

In September 1982 a group of German amateurs DF8AO, DK8KW, DL6PE and DL2NO operated as S1AH (CW), S1AB (SSB), S1AS (CW and SSB) and S1AD (VHF).

There was a lot of excitement as the operation was not announced and everyone was wondering what country this was. Work first and worry later was the general approach. Well, as you know, this was never considered a DXCC entity.

Jon Utley, K7CO (1SL1J), announced in 2000 that he would be active as 1SL1A December 9-12th. Activity would be on 80-10 meters, and also joining the ARRL 10 meter contest. The 1SL1A license from the government had been issued. He also stated the following: "For those that are wondering about using the prefix 1SL… as some of you know in the past 1S has been used for Spratly. This prefix bloc is not reserved for Spratly but used because the area is in dispute over ownership. Sealand is also in dispute. We have created the Radio Amateur Association of the Principality of Sealand and our goals are to become a member of the IARU and eventually the ITU." I have not found any record that the operation actually did take place.

The official web site of Sealand: https://www.sealandgov.org/

Top: Sealand fire in 2006

Centre: HavenCo servers

Bottom: A Sealand Q card

Back to Basics

John Schouten VE7TI

From The Basic Question Bank

What is a parasitic beam antenna?

B-006-9-1 What is a parasitic beam antenna?

Select the correct answer from 1-4 below

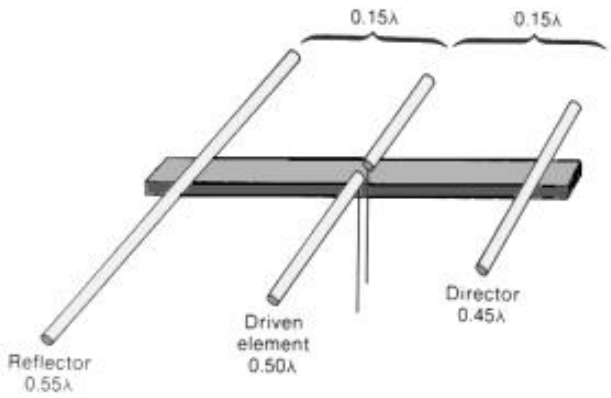
1. An antenna where the driven element obtains its radio energy by induction or radiation from director elements.

2. An antenna where all elements are driven by direct connection to the feed line.

3. An antenna where some elements obtain their radio energy by induction or radiation from a driven element.

4. An antenna where wave traps are used to magnetically couple the elements.

The term 'parasite' means "feeding off something else". A Yagi-Uda antenna, commonly known as a Yagi antenna, is a directional antenna consisting of multiple parallel elements in a line, usually half-wave dipoles made of metal rods. Yagi-Uda antennas consist of a single driven element connected to the transmitter or receiver with a transmission line, and additional "parasitic elements" which are not connected to the transmitter or receiver: a so-called reflector and one or more directors. It was invented in 1926 by Shintaro Uda of Tohoku Imperial University, Japan, and (with a lesser role played by his colleague) Hidetsugu Yagi.



The reflector element is slightly longer than the driven dipole, whereas the directors are a little shorter. This design achieves a very substantial increase in the antenna's directionality and gain compared to a simple dipole.

Also called a "beam antenna", or "parasitic array", the Yagi is very widely used as a high-gain antenna on the HF, VHF and UHF bands. It has moderate to high gain which depends on the number of elements used, typically limited to about 20 dBi, linear polarization, unidirectional (end-fire) beam pattern with high front-to-back ratio of up to 20 db. and is lightweight, inexpensive and simple to construct. The bandwidth of a Yagi antenna, the frequency range over which it has high gain, is narrow, a few percent of the center frequency, and decreases with increasing gain, so it is often used in fixed-frequency applications. The largest and best-known use is as rooftop terrestrial television antennas, but it is also used for point-to-point fixed communication links, in radar antennas, and for long distance shortwave communication by shortwave broadcasting stations and radio amateurs.

The advent of television broadcasting motivated extensive development of the Yagi-Uda antenna as a rooftop television reception antenna in the VHF and UHF bands, and to a lesser extent an FM radio antenna. Until the development of the log periodic antenna in the 1960s it was the only type of antenna that could give adequate fringe reception in areas far from the television transmitter. Very complicated Yagi designs were developed to give adequate gain over the broad

television bands. TV antennas are still a major application of the Yagi antenna. In Amateur Radio, the Yagi is most commonly seen on HF stations. Using traps to tune the lengths of the elements, these antennas can be very efficient on multiple bands.

Yagis are also found on stations used for the higher bands. Hams who specialize in VHF (and up) contests often use a Yagi with a large number of directors, in fact a VHF antenna with 20 elements is not uncommon.

The antenna may be mounted for vertical or horizontal polarization with FM antennas usually vertical and HF antennas horizontal. In some applications there are performance differences between horizontal and vertical polarization. *For* example medium wave broadcast stations generally use vertical polarization because ground wave propagation over the earth is considerably better using vertical polarization, whereas horizontal polarization shows a marginal improvement for long distance communications using the ionosphere. Circular polarization is sometimes used for satellite radio communications as there are some advantages in terms of propagation and in overcoming the fading caused if the satellite is changing its orientation.

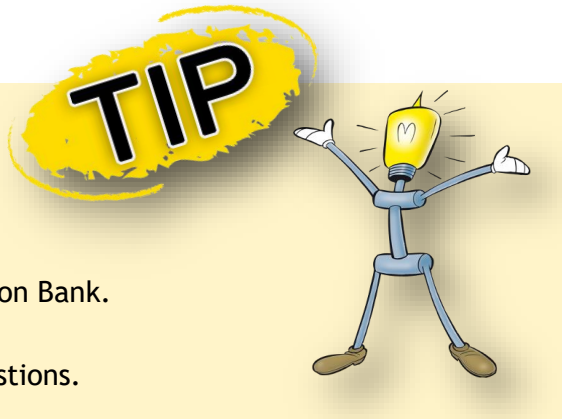
The correct answer to the question is therefore:

3. An antenna where some elements obtain their radio energy by induction or radiation from a driven element.

Here is a link to a YouTube video that shows very clearly how Yagi antennas perform their magic: https://youtu.be/lslHtCUSfN4.

~ John VE7TI

Speaking of TV receiver Yagi antennas, did you know that the highest resolution TV reception is not from cable or satellite? Its true. Both cable and satellite compress the TV signal resulting in loss of quality. Most areas can receive uncompressed full high definition TV off-air. Where I live in the Port Mann area, I receive 8 local stations in amazing detail. Because we face north, directly in the path of Mt. Seymour, where most of the local TV transmitters are located, I merely have to stick a length of hookup wire in the centre terminal of the TV 'F' connector. That's the screw-on connector usually marked 'antenna' on the back of your TV. Give it a try, you'll be amazed AND its free TV. To see how many stations you might receive check the site http://TVfool.com, and to build your own low cost TV antenna see https://www.youtube.com/watch?v=7j80C9d1o9Y



Study Links

Whether you are new to the hobby or brushing up on skills, you should find these study links helpful:

1. RIC-7 is the entire up-to-date Industry Canada (IC) Basic Question Bank. http://tinyurl.com/CanadaBasicQB
2. There is a RIC-7 that has some explanations along with the questions. RIC-7 2014rev08.05 with explanations.
3. The Amateur Radio Exam Generator is at: https://www.ic.gc.ca/eic/site/025.nsf/eng/h_00040.html
4. The ExHaminer Study software for Windows is at: https://wp.rac.ca/exhaminer-v2-5/
5. The Ham Study website has a flash card approach to learning the Question Bank, both Basic and Advanced. It is at: https://hamstudy.org

September 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		For details on all SARC events, go to ve7sar.net For details on all SEPARS events, go to separ.shutterfly.com/calendar			1	2 0900 Klub Koffee Klatch: Kalmar Family Restaurant, King George Blvd & 81st Ave. CONTESTS: Colorado & Tennessee QSO Parties All-Asian Contest (SSB)
3 CONTESTS: Colorado & Tennessee QSO Parties (All modes) All-Asian Contest (SSB)	4 Labour Day CONTEST: Colorado & Tennessee QSO Parties	5 **1930 SEPAR Net** **2000 SARC Net** **SARC Basic Course (18:30-21:30) SFS Classroom**	6	7	8	9 0900 Klub Koffee Klatch: Kalmar Family Restaurant CONTEST: WAE DX (SSB)
10 CONTEST: WAE DX (SSB)	11	12 **1930 SEPAR Net** **2000 SARC Net** **SARC Basic Course (18:30-21:30) SFS Classroom**	13 **1900 SARC Monthly General Meeting**	14	15	16 0900 Klub Koffee Klatch: Kalmar Family Restaurant CONTEST: All-Africa Int'l DX (all modes)
17 CONTEST: All-Africa Int'l DX (all modes)	18	19 **1930 SEPAR Net** **2000 SARC Net** **SARC Basic Course (18:30-21:30) SFS Classroom**	20	21	22	23 0900 Klub Koffee Klatch: Kalmar Family Restaurant CONTEST: CQ WW DX (RTTY) Texas & Maine QSO Parties (all modes)
24 CONTEST: CQ WW DX (RTTY) Texas & Maine QSO Parties (all modes)	25	26 **1930 SEPAR Net** **2000 SARC Net** **SARC Basic Course (18:30-21:30)SFS Classroom**	27 **SARC Exec Meeting**	28	29	30 0900 Klub Koffee Klatch: Kalmar Family Restaurant **GnuRadio Workshop 9am-Noon SFS Classroom**

Contest Details: http://hornucopia.com/contestcal/contestcal.html

Page 13—News You Can Lose

The Lighter Side of Amateur Radio

The police found over 200 dead crows on Alberta highways recently, and there was concern that they may have died of the Avian Flu. A pathologist examined the remains of the crows and, to everyone's relief, confirmed that the problem was NOT Avian Flu. The cause of death appeared to be a form of vehicular impacts. However, during analysis it was noted that various colours of paints appeared on the birds' beaks and claws. By analyzing these paint residues, it was found that 98% of crows had been killed by impact with motorbikes, while only 2% were killed by cars.

The police then hired an Ornithological Behaviourist to determine if there was a cause for the disproportionate percentages of motorbike versus car kills.

The Ornithological Behaviourist quickly concluded that, when the crows eat road kill, they always have a look-out crow to warn others of danger. They discovered that while all the lookout crows could shout: "Cah!", not a single one could shout: "Bike!"

Surrey Amateur Radio Club

At The Last SARC Meeting

Annual General Meeting Minutes

Wednesday, June 14, 2017

The 2017 Annual General meeting of the Surrey Amateur Radio Club (held at the Emergency Management BC Offices/PREOC) was called to order at 7:05pm on June 14, 2017 by President, Stan Williams VA7NF; 31 members were in attendance.

Welcome

Stan Williams VA7NF – welcomed everyone to the meeting and reminded the group that dues are to be paid tonight in order to participate in the vote for directors. Stan confirmed we have a quorum of members attending the meeting. The agenda for the evening was presented on screen.

Agenda: Rob Gilchrist VE7CZV – moved that we approve the agenda (seconded by, Don Hamilton VA7GL and carried).

2016 AGM Minutes: Jeremy Morse VE7TMY read aloud the 2016 AGM minutes, and Stan Williams VA7NF moved that we approve the previous minutes (seconded by Jay Melvin VE7KC and carried.)

Annual Financial Statements

Scott Hawrelak VE7HA - presented the audited financial statements for the year (income Statement, Balance Sheet and the General Ledger were made available for inspection).

Announcements

John Schouten VE7TI - Earlier this year Kevin McQuiggin VE7ZD who presented at our March meeting about GnuRadio and RTL-SDR dongles has offered to host a Workshop. This was presented in the last SARC Communicator and the details can be found there. The workshop will be on a Saturday, September 30th. An signup form was passed around to gauge interest.

Basic Ham Class

John Schouten VE7TI - In the past year we ran 2 classes one in the fall and the other in the spring. The spring course was well attended with 21 students who all passed including 10 with honours. Next class will begin Tuesday, September 5th.

OTC/Clubhouse

John Brodie VA7XB stated that a detailed report was presented in the last SARC Communicator and that we are getting closer to having a fully functioning radio room with one first class station and two of lesser quality but functional. We have almost spent the BC Community grant received this year. We have received most of the smaller items and the larger items are still on order but expected to arrive in the next few weeks.

Over the summer we will be working on preparation for a Lottery Grant application. This will be for the purpose of equipping the second and eventually the third radio stations. John would like to call an OTC Committee meeting this month to discuss where we go from here. He proposed Wednesday June 21 @ 7pm. An email will be sent out to confirm attendance.

Scott Hawrelak VE7HA listed the major expenses for equipping the OTC so far. He also noted that we usually get free cheques from HSBC. This year we were charged $145 for 200 cheques.

Somehow a second order was charged and 200 additional cheques were received. We will plan to keep the extras since they will be used eventually this is easier than returning them and the costs will likely go up. We use about 50 per year and will have approx. 8 year supply of cheques.

Fox Hunt

Stan Williams VA7NF – reminded everyone of a nicely worded email that went around about the outstanding fox hunt with the Surrey Amateur Radio Club. He expressed a big "thank you" to Anton James VE7SSD for his effort and organization of the fox hunt. Anton VE7SSD reminded everyone that a detailed report for the fox hunt including the winners is in the SARC newsletter. John Brodie VA7XB thanked George Merchant for great publicity in the NSARC newsletter.

Membership Report

John Brodie VA7XB – we currently have 120 members including many ham class students who get a free year's membership; 35 are now paid up as of this meeting. This leaves less than 70 members who need reminding to renew.

New Business

Stan Williams VA7NF – Called for any new business before the coffee break and the election of officers.

Proposed By Law Changes

John Brodie VA7XB - To improve the consideration for the Lottery Grant some changes are being proposed, as presented in the last SARC communicator but also presented on screen for the members attending the meeting. Proposed changes are to allow all classes of member to be elected to the Executive. Geoff Higginson VA7HIG - moved that we accept the proposed bylaw changes (seconded by Don Hamilton VA7GL and carried)

Field Day

Sheldon Ward VA7XNL reported that we're only 10 days away and the location is the same as in 2015, i.e. the old Grandview school site at 20th Ave and 176th St. Surrey MLA Marvin Hunt has confirmed his attendance.

Stan Williams VA7NF - On the tower trailer, Hydraulic Technologies Company has taken the entire pump in for servicing and found the oil reservoir was filled with oil/water/rust/gel which clogged the intake filter and cause the failure. It has been repaired but not yet picked up or installed. The entire bill of ~$600 has been waived as a donation to the club. We will be adding their card to the SARC Communicator as a sponsor of the club.

Jay Melvin VE7KC - suggested that we prepare a letter of thanks to the Hydraulic Technologies Company. Scott Hawrelak VE7HA – recommended we send them a gift certificate as well.

Coffee Break

I decided to try an inexpensive antenna design as a starting point "just to get on the air".

Your 2017-2018 SARC Directors L>R:

John VE7TI, Scott VE7HA, Stan VA7NF, Jeremy VE7TMY, Sheldon VA7XNL, John VA7XB, Robert VA7FMR and Bill VE7XS (unavailable).

Election of Directors

Stan Williams VA7NF began the election process by asking Scott Hawrelak VE7HA if there were any members present who have not paid dues. Scott confirmed that all present have paid. Stan noted that there are 4 positions to fill and 4 Directors have offered to stand already and asked for further nominations from the floor.

Sheldon Ward VA7XNL nominated Anton James VE7SSD. Dixie Mogg VA7DIX seconded Anton accepted. Geoff Higginson VA7HIG nominated Arthur Siemens VE7SIE. Arthur accepted the nomination.

Stan Williams VA7NF – After 3 calls for nominations from the floor he moved that nominations close (Carried).

A request was made from the floor that all nominees provide a quick introduction. Each of the candidates provided brief statements.

Nominees:

- John Brodie VA7XB
- John Schouten VE7TI
- Scott Hawrelak VE7HA
- Robert Fishwick VA7FMR
- Anton James VE7SSD
- Arthur Siemens VE7SIE

Stan Williams VA7NF called for 3 scrutineers to count the ballots. Scrutineers were:

- Pam Hamilton VE7PFH
- Sheldon Ward VA7XNL
- Geoff Higginson VA7HIG

Directors elected to a 2-year term were:

- John Brodie VA7XB
- John Schouten VE7TI
- Scott Hawrelak VE7HA
- Robert Fishwick VA7FMR

Kjeld Frederiksen VE7GD - moved to destroy the ballots (seconded Arthur Siemens VE7SIE and carried). Sheldon Ward VA7XNL will destroy ballots.

Stan Williams VA7NF moved to adjourn the meeting (carried)

~ Jeremy VE7TMY
Secretary

Kalmar Koffee Klatch Reminder

The SARC Weekly Koffee Klatch is on Saturday at the Kalmar Restaurant at 80th and King George Hwy in Surrey at 9:00 am. Bring your significant other, bring your family, see old friends and have fun.

Register Now

SARC

Surrey Amateur Radio Club

Industry Canada
BASIC AMATEUR RADIO
Qualification Course

What Can I Do With My Radio License?

- Long range communications anywhere for free without commercial infrastructure
- Use satellite communication to speak around the world, perhaps even to an astronaut
- Participate in 'Radio Sports' like contesting and Fox Hunting
- Enhance your personal and your community's preparedness in an emergency
- Use a computer, smartphone or tablet for free worldwide digital communications
- Practice an exciting hobby

Learn In A Professional Setting
Qualified, Experienced Instructors

Practical Demonstrations
Technical Knowledge Not Required

Fee $100

Includes Course Manual

Surrey Amateur Radio Club
For more information on the course visit
www.ve7sar.net or contact
sarc@ve7sar.net

Course starts September 5, 2017
8 sessions on Tuesdays 6:30pm—9:30pm
plus one optional Saturday workshop
Surrey Fire Training Centre
14901 64 Avenue, Surrey, BC

Operations & Training Centre News

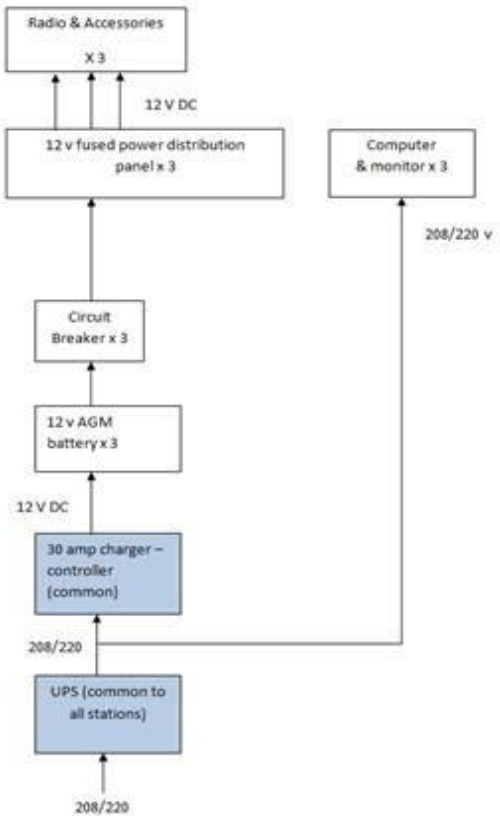
John Brodie VA7XB

A Functioning Reality

We eagerly await the early Fall delivery of the Flex 6600

With everyone busy with holiday activities and family commitments, it's been fairly quiet over the last couple months, but nevertheless there is significant progress to report.

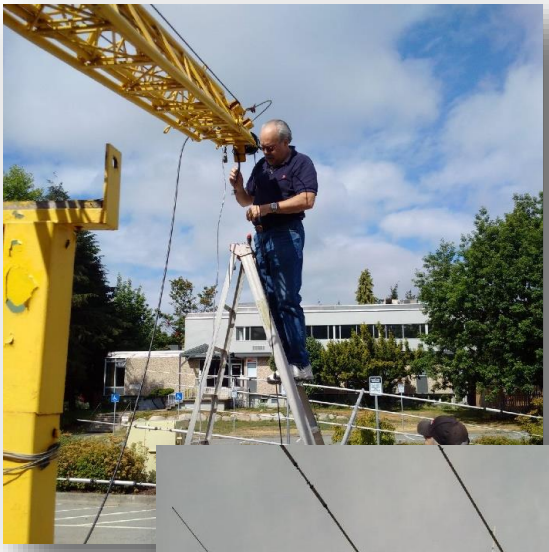
We eagerly await the early Fall delivery of the Flex 6600 purchased with the generous donation facilitated by our faithful patron, Marvin Hunt, MLA. The OTC committee will now have to decide how it wishes to spend the remaining funds in the OTC account, after the decision was recently made to cancel our order for the Powergenius amplifier. A September meeing will be scheduled to discuss options and settle on the best bang for the buck, to serve our long-term objectives.



What has been purchased is an Alfa Spid RAK rotator and controller, to replace the aging and malfunctioning Ham II rotator on Big Yeller tower. The new rotator was successfully installed by a few members who gave up a sunny Sunday morning in early July to make the switch. Yet to be done is connection of the surge arrestors to the rotator cable.

Inside the radio room, some changes will be evident. Thanks to Stan VA7NF, 12 volt power has now been installed at all 3 stations, each with its own battery, circuit breaker, power monitor and Powerpole block. The batteries are kept charged by a Samlex charger and UPS, as shown in the diagram left; this eliminates the need for separate power supplies. The long term plan is to replace desktop computers with laptops which, of course, have their own batteries.

The antenna patch panel was also completely rebuilt, by John VA7XB. It has been installed in the equipment rack so each station can be connected to any antenna by way of a patch cable *(photo top of next page)*.



Should the operator wish to connect directly to the antenna, bypassing the triplexer and bandpass filters is also possible. However, it is evident that further changes to the patch panel may be required to accommodate: a) the need for 2 antennas at each radio when operating SO-2R or b) operating remotely. These options shall evolve as the strategic plan gradually takes effect.

Another important goal was achieved early July, i.e. our application for a gaming grant to equip the second of three planned stations was submitted. We will resist the temptation to predict the outcome of this application, except to note that the claimed deficiencies of the previous application have been remedied, including changes to the bylaws to eliminate the gaming branch's concern over "exclusivity" of club membership which previously permitted only licensed amateurs to serve on the executive committee.

In coordination with SARC, SEPAR is now taking a more active role in the use of the OTC, with plans to set up radios to supplement facilities at the EOC (No. 1 Firehall) and the portable grab & go kits.

Several long-standing problems still exist that limit the functionality of the OTC as a training and operations centre, and discussions are active at the Executive level to get them resolved. Many thanks to those who took time from their busy summer to assist with the various work projects. Also we are grateful to Steve McLean VE7SXM who has donated a number of useful items from Hewlett Packard.

~ John VA7XB

Surrey Emergency Program
Amateur Radio

The SEPAR Report

Roger Andrews VA7VH - SEPAR Coordinator

September Update

Since our May AGM I have been trying to get people more interested in SEPAR again. We have just had an RAC Event @ the Surrey Amateur Radio Operations & Training Centre we had a HF radios setup for members and the Trailer was on site. It was a fun event and those of you that weren't there missed a good day to socialize.

Other planned events are for:

Sunday, September 10th is CN Day 11:00 - 16:00hrs. Please plan on helping out with our display there. Remember, there is always good (and free) food at this event. The location is at the CN Rail Thornton Yard at 117th Avenue and 138th Street, in Surrey.

Saturday October 21st we will be helping Scouts during their JOTA (Jamboree On The Air). This event was held last year at the OTC, and will be again this year. It will run from 10:00hrs to 16:00hrs. Contact John VE7TI via ve7ti@separs.net if you are available to assist.

With approval of Deputy Chief Griffieon, Grab & Go kit # 3 is now set up at the Surrey Amateur Radio Operations Training Centre (OTC). It is in the SEPAR room which is located directly beside the Surrey Amateur Radio Room. It will be left setup there as a place that members can train on the G&G kits. It will also be used as a link between the OTC with it's excelent HF capabilities and the EOC at Hall# 1, which has limited HF.

I've had a few meetings now with Assistant Chief Mark Griffieon. We've gotten several used Panasonic CF-30 Toughbooks with Windows 7 from the City. These will be replacing the laptops we currently have in the Grab & Go Kits that, while about the same age, still have Windows Vista. The Toughbooks are much more durable for use in places like a Grab & Go kit and the trailer.

Mark has been positive of SEPARs role in the City's Emergency plan and would clearly like to see us succeed and add new members.

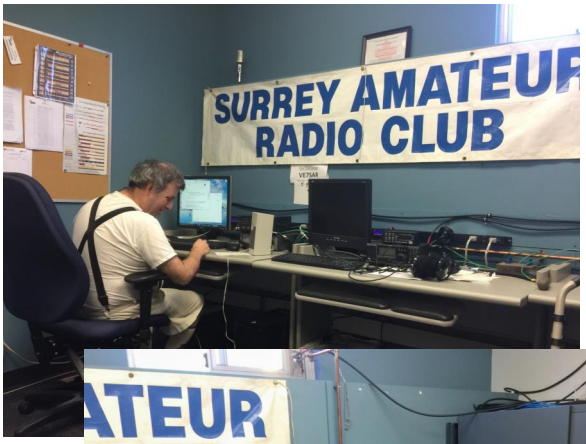
Our contact has been Assistant Chief Mark Griffieon. He has just been promoted (congratulations) and is now Deputy Chief. Our new contact with the Surrey Emergency Program (SEP) will be Assistant Chief Shelley Morris. We met last week and I look forward to a good working relationship with her as well.

Many ARES type organizations have an Assistant or Deputy Coordinators and I was authorized by the City to add a Deputy Coordinator to SEPAR. John - VE7TI will fill that role. It's always a good thing to have an alternate person that can deal with the City. John, being a SARC Director will also be able to speak to concerns that involve SARC as it relates to SEPAR. As some of you may already know, it is the hope of SEPAR that SARC and SEPAR can have a renewed working relationship. For instance, SEPAR and SARC have been discussing the best way to integrate SEPAR VHF digital into the OTC and over the weekend, with the move of G&G kit into the OTC, that is becoming a reality. SARC has much, much better HF capabilities than SEPAR and would be a major asset in

an emergency. Long distance messages could easily and quickly move digitally on VHF from the EOC to the OTC and then out on HF. This would be a tremendous asset. SARC members would no doubt desire a role in emergency communications should an event occur and having an integrated service would assure smooth sailing.

John, is the perfect person to help this integration become a reality because of his commitment to both organizations, as well as his knowledge of emergency communications.

~ Roger VA7VH



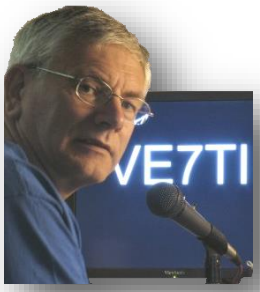
It was a busy day on August 26th at the Surrey Amateur Radio Operations & Training Centre (The OTC).

SEPAR hosted the RAC Canada 150 special event call VE7RAC. Rob VE7CZV is shown at the mic.

It was also moving day. SEPAR moved into its own radio room beside the main radio room. The plan is to operate above 30MHz on phone and digital from the SEPAR Room and HF from the main comms room.

A Grab 'n Go kit will be deployed in the room for training and exercise purposes. Roger VA7VH checks out WinLink.

Surrey Emergency Program
Amateur Radio



Emergency Comms

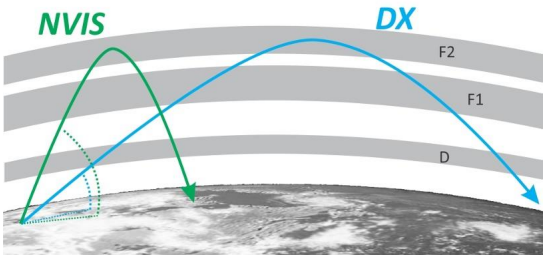
John Schouten VE7TI

Near Vertical Incident Skywave Antennas

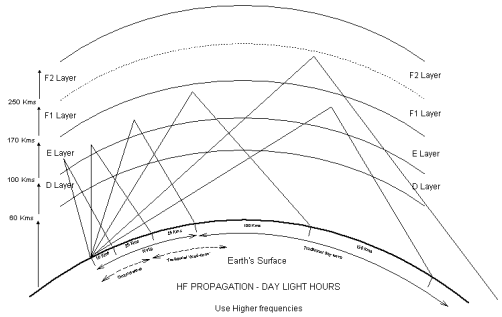
The article on page 4 of this Communicator details Robert VA7FMR's experiences with a dipole using hamsticks and a dual bracket. In the last issue of this publication we promised additional information on Near Incident Vertical Skywave (NVIS) antennas.

SEPAR and many like organizations may be called upon in an emergency to provide ancillary communications for emergency services or primary communications for those emergency service partners who do not have RF communications systems of their own, ESS, The Red Cross and Salvation Army, to name just a few. It is a given that the first stations will be on the higher bands above 50 MHz. Anyone with a Basic License may operate within that spectrum. This should provide reliable communications with modest antennas within the Lower Mainland—no, not just with a handheld and a rubber duckie. Even if many of the local repeaters fail, we should manage to set up a decent network within a few minutes to hours. But what if reliable communications are required for longer distances, for example to Kamloops or to Seattle, or beyond? VHF and above may not be able to span that distance without gain antennas, placed high with at least 50 Watts of power. HF will be the 'goto' bands. We may not need a 60 foot or higher tower to communicate effectively either—this is where NVIS becomes an important emergency communications antenna, especially in the field.

If you recall the antenna theory that you should have picked up in your Basic course, you know that the orientation (horizontal, vertical or somewhere in between) of an antenna will affect its radiation pattern. Much like bouncing a ball off a wall. The greater the angle, the greater the distance the ball bounces away from you. Throw it straight at the wall and it should come pretty close to you on its way back. The same general idea applies to the NVIS antenna. If we cause the RF wave to travel nearly straight up or at a slight angle, it will reflect off the ionospheric layers and come back close to our point of origin. So, if we want to communicate on HF with stations within about 1,500 Kms, we use an antenna that radiates primarily straight up. A DXer on the other hand prefers to talk to stations far away, with a few hops, the farther the better, so DX antennas radiate at angles primarily horizontally to bounce and skip back off the ionosphere for the greatest distance.



So, the NVIS antenna is one that provides the majority of its radiation at an extremely high angle. That is to say the major lobe is between 75 and 90 degrees to the earth's surface. This will provide excellent omni-directional communication out to a distance of up to about 1,500 Kms with no skip. The maximum frequencies involved will be as low as 1.8 MHz under



very poor conditions to as high as 14 MHz under excellent conditions, with the most usable being between 3.5 MHz (80M) and 7.3 MHz (40M).

To summarize, NVIS works for frequencies lower than the vertical incident critical frequency—the highest frequency for which signals transmitted vertically are reflected back down by the ionosphere. At or below the critical frequency the ionosphere will reflect an incident signal arriving from any angle, including straight up. Because the critical frequency is low, you must usually operate 40, 80 or 160 meters or possibly 30 meters to use NVIS propagation.

Under most conditions you can easily obtain coverage on one of these bands from zero to 350 miles or more with no skip zones. On 75 meters with 100 W and an antenna 15 feet high, contacts with stations over 1000 miles away with excellent signal reports are not uncommon.

These are the characteristics we look for in an emergency-ready HF antenna for distances up to about 1,000 miles… No skip, easy set-up and take down and reasonably reliable communications.

When I first started looking at the NVIS antenna for "local", primarily emergency communications, the consensus seemed to be that it was a dipole-type antenna, near 1/8th wave at the operating frequency, above the ground. I purchased a set of HamSticks, mounted as a dipole, for this purpose as I was operating from a vacation area surrounded by high mountains. NVIS antennas are commonly used by the military as their needs fit these characteristics. There is an excellent, though technical article at https://region6armymars.org/downloads/NVIS-Antenna-Theory-and-Design.pdf

Every horizontal antenna has an NVIS component in its radiation. Similarly, every horizontal antenna has a component that is most useful for DX. Your decision then is to pick the configuration that either favours or optimizes the properties you want. Reliable local communication on HF dictates NVIS. How then do we determine what NVIS antenna will best suit our needs? Let's examine the parameters that have a significant effect in antenna performance. This is information on how to make it work reasonably well, NOT a graduate degree treatise on the theory of NVIS.

Height above ground

The antenna height above ground seems to be the single most controversial subject in discussion of NVIS antennas. Some say anything below 1/4 wave works. Others say anything below 1/8th wave and yet others say ten to fifteen feet works very well. You will note that there is negligible difference in antenna gain between 1/8 wave and 1/4 wave height. There is however a significant difference in the logistics of placing an antenna at 70 some feet in the air versus 35 feet in the air.

> *…We may not need a 60 foot or higher tower to communicate effectively*

Antenna guru L.B. Cebik (W4RNL), writing about NVIS antenna elevation, explains that the height, in the 1/8 to 1/4 wave length above ground, has very little difference in gain. In fact, if you roll in the next parameter, ground (detailed below), height can easily have much less effect than ground.

The Near Vertical Incident Skywave (NVIS) antenna is a half-wave dipole antenna, configured straight or as an inverted vee, mounted not over 1/8th wave above ground (at the highest operating frequency). While 1/8th wave works reasonably well, better coverage is obtained if the antenna is mounted at about 1/20th wavelength above ground. A second advantage of lowering the antenna to near 1/20th wavelength is a lowering of the background noise level. At a recent ARRL Section Emergency Test, communication on 75 Meters was started with a dipole at approximately 30 feet. They found communication with some of the other participants to be difficult. A second 1/2 wave dipole was built and mounted at 8 feet off of the ground. The background noise level went from S7 to S3 and communications with stations in the twenty-five and over mile range were greatly enhanced. Simply stated, you want as much of your signal going up as possible and ten to fifteen foot height has shown to function very well. It was also found that a network of stations, all using NVIS antennas experienced much stronger local signals.

Ground

Yet another consideration is the "quality" of the ground below your antenna. By this we mean the conductivity of the ground you are operating above. For any given height (1/4th wave length or less) poor conductivity will attenuate up to 3db more of your signal than high conductivity soil. A documented example is the ARES installation in Longmont, CO at the Emergency Operations Center. That antenna is mounted ten feet above a flat roof. The base for the roof is a grounded steel plate. This antenna consistently performs as well or better than any other in the state. The reason is simple; A full sized resonant dipole antenna mounted ten feet above an excellent ground.

A specific example of how well the Longmont EOC antenna works is one Sunday when testing the antenna, a local ham tried his Yaesu FT-817 running on the internal battery pack. As most know, that configuration produces 2.5 watts PEP maximum output. At that power level he received a signal report from NCS in Colorado Springs (90 miles South) of S9+10db, on 75M just before the net started.

Another example of how the conductivity affects your signals comes from Colorado where they regularly use NVIS antennas on 60M to communicate across the Continental Divide. Doing this on a twice weekly basis for several years now they have established a base-line for comparison. The week of 23 September 2004 they had a slow moving rain storm that put down more than one inch of rain, spread almost evenly over about 36 hours. For those that have thirty to fifty inches of rain per year, that would not be much. In Colorado that is one-fifteenth of their total annual precipitation. After the rain, under less than optimal band conditions, signals were UP 6 to 10db!

The chart by L.B. Cebik's (W4RNL) shows that any NVIS, above excellent ground, out performs an antenna above good ground at optimal height! Hmmm, does that imply that we have found the single most important parameter in NVIS?

Ground wire

Yet another approach is to run a "ground" wire at the surface where the antenna is mounted. A good discussion on this is found at an Australian site by Ralph Holland. He did some research on 160M and found that a ground wire at .02 to .06 wave lengths below the driven element

produced the best gain. That translates to about 5 to 15 feet at 75M which would be consistent with the heights seen that have produced the best NVIS performance. Others claim at least a 6db improvement with this same approach.

Experimenters also notice an improvement if you "water" the ground just prior to operation. Pour about one gallon of water on the ground around the ground rod or wire. If it seeps in very quickly, go get another gallon. This has made a noticeable improvement in both transmit and receive signals.

Counterpoises

The high angle radiation of a dipole (or inverted vee) can be enhanced by adding a counterpoise wire below it, about 5% longer than the main radiating element, to act as a reflector. The optimum height for such a counterpoise is about .15 wavelengths below the main radiating element, but when the antenna is too low to allow for that, a counterpoise laid on the ground below the antenna is still effective.

A knife switch at the center point of the counterpoise can be used to effectively eliminate the counterpoise from the antenna system. This technique is useful for using a dipole for NVIS and longer distances, too. A counterpoise is installed at ground level, or as high as the switch can easily be reached, and a dipole is mounted .15 wavelengths above the counterpoise. When the switch is closed, the vertical gain will increase, and the noise levels will drop. When the switch is open, lower angle gain will increase, improving the antenna's performance for non-NVIS use.

Dual Ham-Stick

This is a portable antenna on a 5-foot mast that does well under ARES/RACES operating conditions. One person can put this up and have it operational in under five minutes! A side advantage of this antenna is its comparatively small size. It is only sixteen feet in length, which makes it much more reasonable for temporary installations (*See also Robert VA7FMR's article on page 4*).

Inverted Vee

A dipole's close cousin, the inverted vee, is another good NVIS antenna which can be even simpler to support. An inverted vee will work almost as well as a dipole suspended from a slightly lower height than the apex of the inverted vee, so long as the apex angle is kept gentle—about 120 degrees or greater. An inverted vee is often easier to erect than a dipole, since it requires only one support above ground level, in the center.

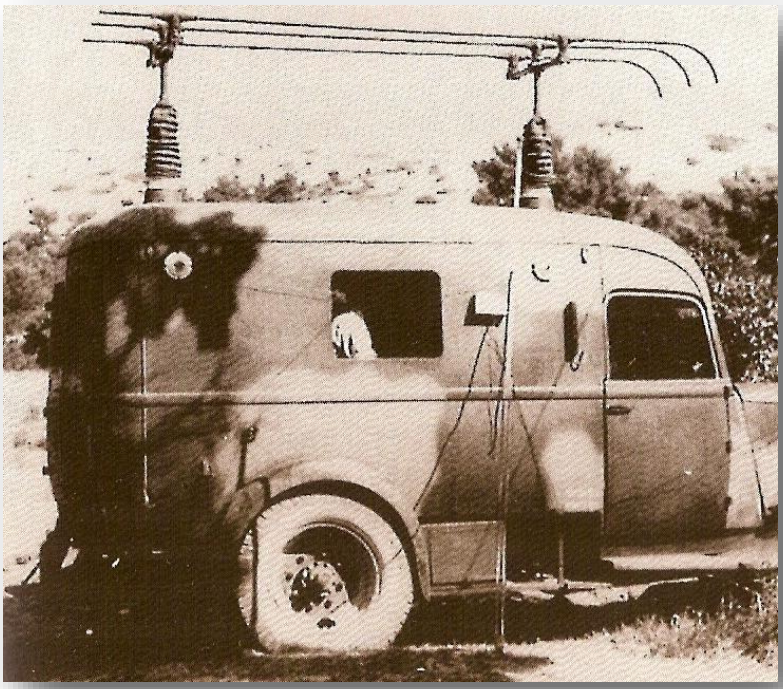
This design has been successful for the author. It was developed by Dr. Jelinek and is in commercial use by the Armed Forces *(see the article on page 26)*.

How do I select a frequency for NVIS operation?

The selection of a optimum frequency for NVIS operation depends upon many variables. Among the many variables are time of day, time of year, sunspot activity, type of antenna used, atmospheric noise, and atmospheric absorption. To select a frequency to try, one may use recent experience on the air, trial and error (with some sort of coordination scheme agreed upon in advance), propagation prediction software, near real-time propagation charts (available on the Internet) showing current critical frequency, or even just a good educated guess. Whatever the strategy used for frequency selection, it would probably be best to be prepared with some sort of "Plan B" involving communicating through alternate channels, or following some pre-arranged scheme for trying all available frequency choices in a scheduled pattern of some sort.

'HamStick' antennas may be paired to make a very usable dipole antenna. Mounting height will affect the radiation pattern and therefore propagation.

Below a typical HamStick with the fiberglass body wrapped with the matching coil and adjustable whip.



http://webclass.org/k5ijb/antennas/NVIS-low-antenna-regional-communications.pdf

Finally, this is also an antenna that should be in the 'kit' for Field Day or contests. We usually concentrate on working any and all stations however, skip actually works against us when it eliminates many potential contacts up to 1,000 miles or so. The ability to switch to an NVIS antenna may bring in those stations within the skip zone and enhance the score.

A NVIS antenna on a wartime military vehicle.

The NVIS AS-2259 Military Antenna

Mike Melland, W9WIS

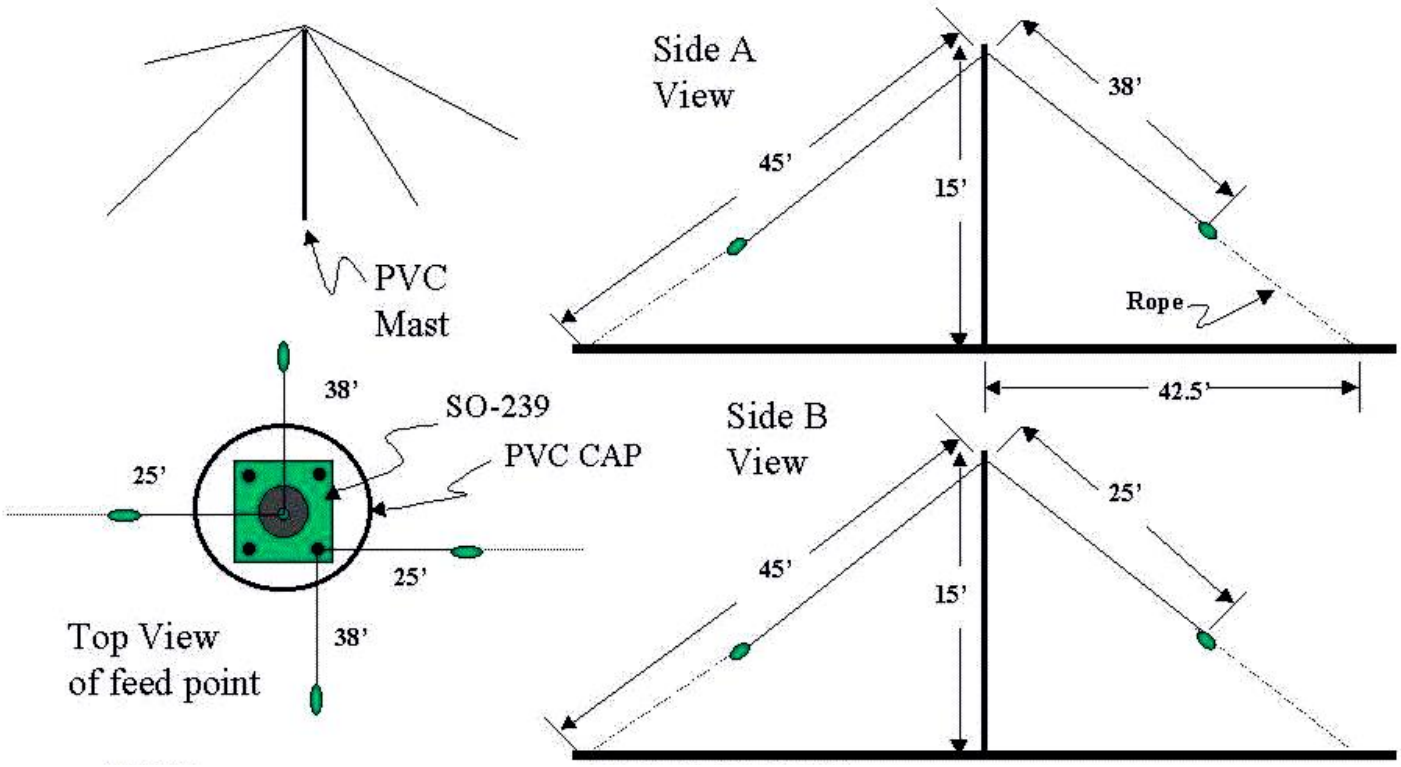
The most famous of the NVIS military antennas, recently in use during the War in Iraq by US Forces, is the AS-2259 NVIS antenna, manufactured originally by Collins Radio (Model 637-K1) and now by Telex Wireless (Model 1990) as well as Harris Communications (Model RF-1936). The most interesting thing about the AS-2259 is that the hollow 1.25" tube that makes up it's mast also serves as a low loss feed line. Here is the Army Technical Manual for the AS-2259/GR Antenna. In the pages that follow I'll walk you through construction of a "homebrew" version of the famous AS-2259!

Build Your Own AS-2259 NVIS

Construction Details

Drill a PVC Cap to accept SO-239 (7/8") and 4ea #6 screws, lock washers and nuts. Make sure to center the SO-239 in the hole before drilling the 4 screw holes. Lock washers go under the nuts. 3 screws are 1/2" and the other is 1".

Cut off the head of a 1" #6 brass screw and solder it in the center post of SO239. Cut antenna wires to length plus a little Fit one end of each wire with solder lugs Fit the other with the egg insulators and parachute cord or other nonconductive rope, which serves as guy ropes on the



ends of the 4 elements. Two guy ropes should be at least 7.5' long for the 38 foot antenna wires and 20.5' long for the 25 foot antenna wires. Locate the 4 Plexiglas pieces and drill 3/8" holes on each end. Slip the guy rope through one hole and tie it to the other. See picture on last page if you have trouble visualizing this. These pieces allow you to pull the Plexiglas piece up the guy to shorten it and adjust the tension of each guy. The total length of each element, wire and guy, is about 45 feet.

Drill hole in center of second end cap (3/4") and run round steel 18" X 3/4" rod through the center. I purchased the rod at Menard's Home Center and it would also be available it Home Depot, Lowes or similar home centers. This is the bottom section and the center stake helps when setting up the antenna.

Drill a 3/4" hole near the bottom of one end of one of the 5' pieces of PVC pipe. After drilling the hole run one end of 17' of RG-58 coax through the pipe and out the hole. Crimp a SO-239 on this end. Crimp a PL-259 on the other end. The long end is run through the pipes before erecting the antenna as a coax feed. Alternately you can just run a long piece of coax to the top but I thought this was quicker and easier. I leave the coax in the bottom section and feed to the connector in the top when I assemble the antenna. You may find it easier to leave the coax in a coil and feed from the top through the bottom.

Install pipe coupling to one end of the pipe as seen above. Install a coupling to the remaining pipe as well. The couplings need not be glued, in fact I didn't glue any of the caps or couplings and they seem plenty sturdy for the purposes of the support mast. Put the top cap with SO-239 on top of what will be the top section of PVC pipe. Attach wire elements to the top cap as shown in the drawings, also illustrated below.

Drive the section with the bottom cap and spike into the ground. Assemble the

The connector in the cap

Antenna Parts List

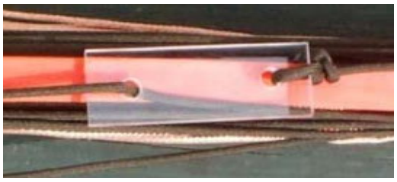
- 3 ea 1.5" PVC pipes 5' long
- 2 ea 1.5" PVC coupling
- 2 ea 1.5" PVC cap
- 4 ea egg type insulators
- 3 ea brass round head screws (1/2" 6-32)
- 2 ea brass round head screw (1" 6-32)
- 4 ea lock washers for 6-32 screws
- 6 ea brass hex nuts (6-32)
- 4 ea flat #6 brass washers
- 1 ea SO-239 chassis connector with solder pot center pin
- 1 ea SO-239 coax crimp on type
- 4 ea stakes 1 ea round metal stake 3/4" by 18"
- 4 ea heavy solder lugs to fit brass screws (you "could" use crimp on type)
- 4 ea Plexiglas pieces, 1" X 3", hole drilled through each end
- ~150' copper antenna wire (braided/ woven type like Davis Flexweave works best)
- ~60' nylon rope (Parachute type cord works great and is inexpensive)
- ~17' RG-58 (coax for center mast feedline)

other two sections together and then hoist onto the lower section. This is MUCH easier with two people but with practice you can assemble it yourself. Just be careful in case it falls over. Extend the wires as in the diagrams and attach the guy ropes to the stakes. The stakes should be located 42.5 ft from the center mast of the antenna so the wire elements form crossed dipole-like antenna sections.

Thread the Plexiglas pieces onto the guy ropes. Snug up the guy ropes to straighten the antenna mast using the Plexiglas pieces you made earlier. they make it easy to adjust the guys. Check out the photos which follow and you'll get a better idea of how to make the Plexiglas guy tensioners.

I bought power cord holders at a home center to wrap the wire and guys on and labeled each (38' or 25'). they were 2 for a dollar so it was really a deal. Using these for guy and antenna wire storage really helps things stay neat when I break down the antenna and store it in its bag.

~ Mike Melland W9WIS

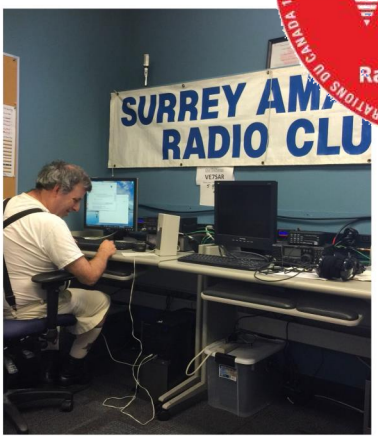


RAC News

The RAC Canada 150 Award

The RAC Canada 150 Award is a celebration of Canada's 150th birthday since Confederation in 1867. The Award is issued for contacting the RAC stations between July 1, 2017 and December 31, 2017. In addition to the RAC Canada Contest, the RAC Canada Winter Contest and the IARU HF Championship Contest, the RAC stations will be activated by volunteers at other times by pre-arranged schedule. SARC-SEPAR member Fred Orsetti VE7IO is coordinating the use of the VE7RAC callsign in BC. Any licensed Amateur who is a member of RAC may use the callsign by pre-booking it.

RAC has prepared a few Guidelines and Procedures to assist making contacts with participating stations. See http://wp.rac.ca/rac150/ for further details.



SEPAR reserved the VE7RAC special event callsign for use at the RAC Canada 150 event held at the Surrey Amateur Radio Operations & Training Centre on August 26th.

Here Rob VE7CZV is at the mic.

The Contest Contender

John Brodie VA7XB

Worked All Europe (WAE) Contest

Here is one designed for amateurs who claim that contests are boring:

The Worked All Europe (WAE) contest. The CW version took place on the weekend of August 12/13. I invited new licensee and SARC member Slawa VE7LWW (also ER1LW) to my station to participate, not only because he is a champion contester in his native Moldova, but because I saw it as a opportunity to watch him and learn how to do the most challenging part – the QTC or exchange of messages. The QTC isn't essential but if you are serious about your score, you will have to become adept at this added feature as each QTC exchange is worth one point. A proficient operator can typically make 10 QTCs inside of 60 seconds.

Now the object for North Americans is to exchange contacts and messages only with Europeans (except for RTTY version of WAE) so this doesn't bring forth the usual pell-mell pileups that we would experience on work-em-all contests. Furthermore WAE contesters don't have much patience for a rookie's 15 wpm – all of them are above 20 wpm, most above 25 and a considerable number send and receive at double that speed. However, the SSB and RTTY versions of WAE will be easier to manage if you are a beginner.

Now worldwide propagation is not good at the present time, so in addition to copying fast CW over the North Pole with the normal flutter that attends it, most of the signals are weak. Try copying 10 fast, weak, fluttery messages in a row, without a break, without an error, and if you succeed you are entitled to claim some status as a "pro". Clearly I am not there yet.

Sending CW messages is not so difficult if you are the sender, as N1MM+ does most of the work, but it will test your prowess in copying CW if you are the receiver, especially since up to 10 messages are sent in succession at breakneck speed. So the standard answer for me to the question QTC? at the moment is "no, sorry".

The SSB and RTTY versions of WAE are scheduled for Sept. 9/10 and Nov. 11/12 respectively. Who has what it takes to jump in?

Opening the QTC Window

There are two QTC windows, one for Receive QTCs and one for Send QTCs. You open these windows by typing CTRL+Z (hold the CTRL key down, then press the Z key). When you type CTRL+Z once, the Receive QTC window opens as shown in Fig. A. When you type CTRL+Z a second time, it brings up the Transmit QTC window. There is one prerequisite. You MUST have a callsign of a station located in a different continent in the call field of the entry window or else you cannot open the QTC windows.

Receive QTC Window

If you wish further information on this contest, you can find it at:

http://www.hornucopia.com/contestcal/weeklycont.php

and

http://www.darc.de/der-club/referate/referat-conteste/worked-all-europe-dx-contest/en/

and an excellent tutorial at

https://www.rttycontesting.com/tutorials/n1mm/operating-wae-rtty-with-n1mm/

~ *John VA7XB*

The SSB and RTTY versions of WAE are scheduled for Sept. 9/10 and Nov. 11/12 respectively. Who has what it takes to jump in?

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HYDRAULIC TECHNOLOGIES INC.

Stan thanking Rob Mathieson of Hydraulic Technologies, who repaired the hydraulic system on Bigfoot at no charge.

Many thanks to Rob!

http://www.htihydraulics.com/about-us.html

North Shore ARC Advanced and CW Courses

Notice of NSARC Advanced Amateur Radio Course and Morse Code Course. The North Shore Amateur Radio Club (NSARC) will be giving an Advanced Amateur Radio Course this fall, taking place over 6 Saturdays 9:30 am – 2 pm (September 30, October 7, 14, 21, 28 and November 4, 2017). The Exam (Innovation, Science and Economic Development Canada, formerly Industry Canada) is scheduled for Saturday morning, November 4, 2017. Instructors are Mark Spencer VE7AFZ and Keith Witney VE7KW.

The cost will be $110 paid by cash or cheque or via Interac, and that includes printed handouts, PowerPoint lesson slides, text book, coffee and snacks. A number of discounts are available (such as for NSARC, EMO/ESS Staff, students with a valid student card, etc.)

A Morse Code course will be given in the afternoons of the same Saturdays. The Instructor is Carole Eng VA7QCE; with Keith Witney VE7KW acting as facilitator. The cost will be $30, payable in advance by cash, cheque or Interac payment.

For more information or registration, contact Sally Finora VA7SMF, sfinora@telus.net

Radio-Active

Geoff Higginson VA7HIG

Profiles of SARC Members

Paul Piovesan
VA7PIO and VE7DOG

Bitten by the Radio Bug Down Under

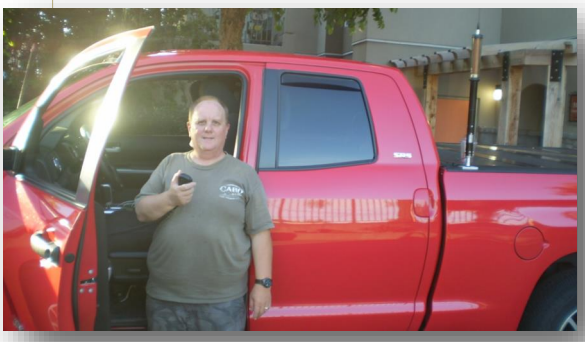
Paul Piovesan, VA7PIO (and VE7DOG) has been interested in Amateur Radio since a kid growing up in Melbourne, Victoria Australia, where he also spent some summers on a farm in New South Wales. His mom's friend was an electronics engineer responsible for maintenance of air traffic control electronics. He went to work with him sometimes and got to listen to the tower talking to pilots on the headset. A shortwave listener he logged International Radio Stations and Numbers Stations at night. This sparked his interest and he began to self-study in earnest, trying to learn everything he could about radio, working on code and immersing himself in all aspects of the hobby in order to get his license.

After moving back to Canada at fifteen he continued his interest in radio and electronics, first getting into CB. Some of his CB contacts were also Amateur Radio Operators and they encouraged him to keep studying and learning to get his license.

Even though he was well versed in many aspects of ham radio he soon turned to SARC for guidance in how to study for the exam and with the help of Stan VE7NF, and enrolling in the SARC Basic Course with John VA7XB and John VE7TI, he earned his Basic with Honours in the spring of 2016.

Paul operates on VHF/UHF with his Yaesu 8800 mobile, on HF mainly 40 meters with his Yaesu FT 891 with the Little Tarheel II Screwdriver antenna and when Portable, VA7PIO gets out on his Baofeng UV5R dual band hand held. When operating from his base station he worked 20 meters consistently with his horizontally positioned 3' magnetic loop antenna working local and into southern California, Alaska and Central Mexico. Unfortunately he was faced with a newly elected over-zealous strata council member with little tolerance for our hobby, who forced him out of the base station operations with draconian fines and other measures. Soon to be situated in Surrey Paul hopes to get his loop up again and install his 16 foot MFJ vertical to get back on the air from home.

While travelling for pleasure and working BC in his profession as a Scale Technologist, Paul is on air via repeaters and networks around the province and works HF, mainly 40 meters, from his truck.



One of Paul's greatest moments in radio was a QSO on 20 meters with "Last Man Standing", the Tim Allen Series crew working station K6LMS through a simple dipole out of Southern California. He was able to listen to his QSO on You-Tube where the crew upload their QSO's for everyone to hear.

Friends, family and workmates are into ham radio and along with hiking with his mixed breed dog "Echo" he enjoys all kinds of electronic experimentation and working on cars. Paul shares his QTH with Bride Theresa.

You can chew the rag with Paul on the SARC Nets, 20 and 40 meters and if you are lucky tag a QSO with him on his second call Victor Echo Seven Delta Oscar Golf. 73 and thanks for sharing your Radio Active Life with the Communicator Paul.

~ Geoff VA7HIG

Field Day 2017

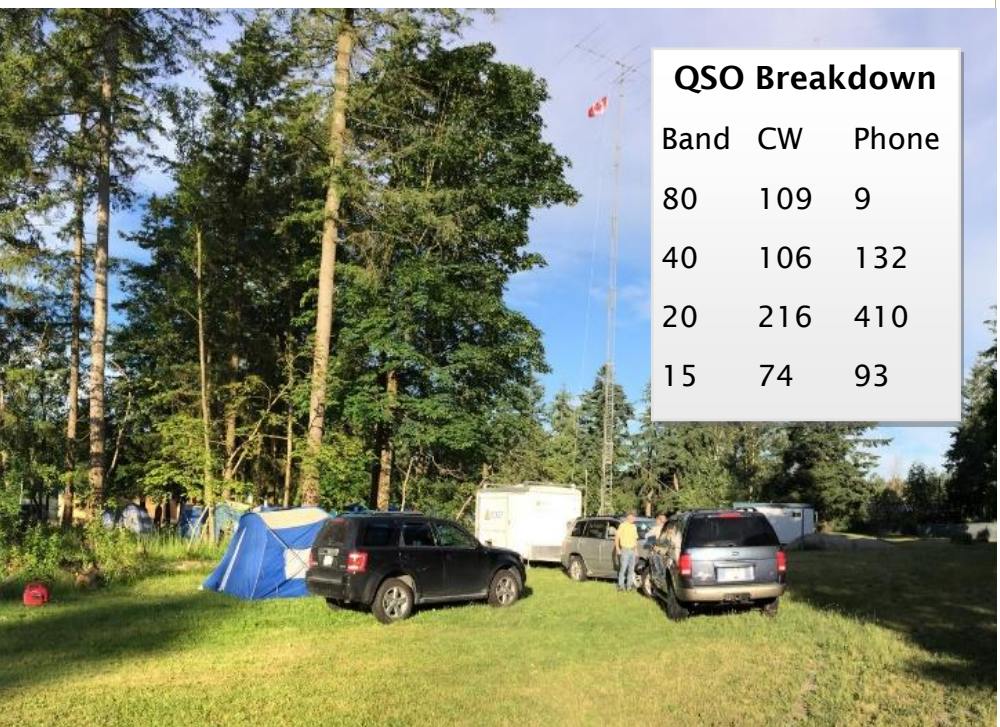
Sheldon Ward VA7XNL

We might not be breaking any records with a total of 1,149 QSOs but I think everyone had a good time and that's what is important.

This year the ARRL Field Day was June 24-25th and we had excellent weather.

We were granted permission by the City of Surrey, through the help of the Surrey Fire Department, to setup at the old Grandview Heights Elementary School. This is the same location used in prior years for Field Day and is on the south side of the hill providing good RF signal propagation.

Setup started 24 hours in advance on Friday at 11 AM. In prior years we have used a single large tent for all the radios but this year we setup two smaller tents and the SEPAR communications trailer. This greatly reduced setup time with our limited work force and also provided sound separation between stations. A drawback of this however was one tent got pretty warm during the day.



QSO Breakdown

Band	CW	Phone
80	109	9
40	106	132
20	216	410
15	74	93

This year's event was more of a social and as such all SARC members were invited to participate making contacts and we had several "newbies" without HF contest experience give it a try. Experienced contesters and operators took the time to help those requiring it. And all operators were giving the opportunity to work the "active" bands. In all we had 14 operators.

This year we operated as "3A" - we had 3 radios and operated in the field with "emergency" AC generator power. Antennas were a TH7 yagi at about 110' providing 10, 15 and 20m and an OCF wire providing 40 and 80m bands. No contacts were made on 10m so we had 4 bands as shown below. In true Field Day fashion we did not have internet access to provide "spots" and thus had to find new contacts the old fashioned way.

We did have some computer networking issues at the start but because the N1MM logging software maintains local logs it wasn't a major concern and didn't really interrupt with the fun. AC power was also an initial issue once the three radios were transmitting but was quickly resolved after removing a backup AC power supply and connecting a second generator. Having a backup for your backup power is always a good idea!

Special thanks to Nell and Ralph for providing and preparing food. It was greatly appreciated.

This event could not have been a success without the help of many hands.

(Continued on page 36)

Images of Surrey Field Day 2017 at the former Grandview School site. More photos on-line at: http://tinyurl.com/SARC-FD2017

For the FD Drone video click on the picture or go to http://tinyurl.com/SARC-FD-Drone

(Continued from page 34)

Special thanks goes to those on the Field Day Committee *(listed left)* that attended meetings months in advance and put in hours planning, preparing and arranging equipment, food, transportation and the like to pull off a successful event over three days. And thanks to those that helped with setup on the Friday and Saturday morning.

And a very big special thank you to Rob Mathieson at Hydraulic Technologies in Surrey who repaired our big traveling tower (AKA Bigfoot) in a nick of time for Field Day. The tower had some serious issues being raised and it would have been questionable if it would have worked for Field Day. Rob fixed the problem FREE of charge! Thanks Rob.

We would like to hear from SARC members that attended about what problems they saw and could be improved for future Field Days. Please let me or the directors know your thoughts. We will also have a discussion at a future club monthly meeting.

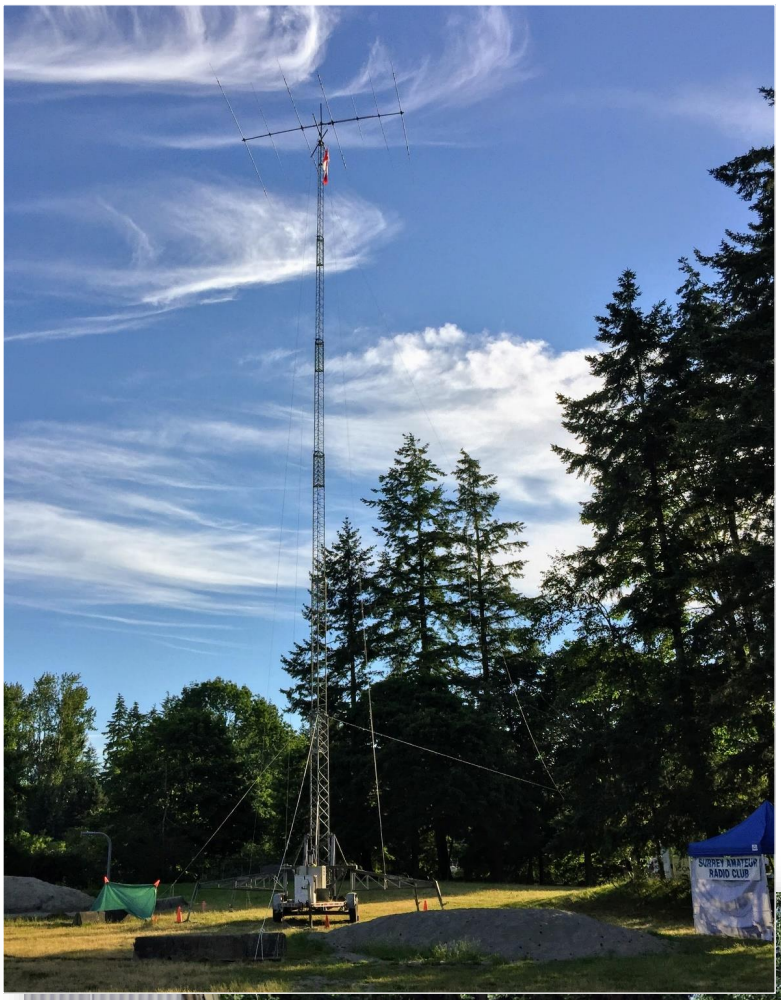
We might not be breaking any records with a total of 1,149 QSOs but I think everyone had a good time and that's what is important. Even though a lot of work goes into a Field Day in the "field" I really enjoyed it and hope we can do it all again next year!

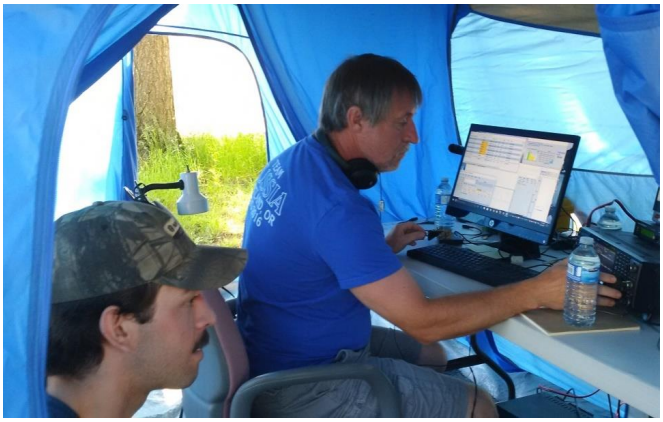
While Field Day is technically NOT a contest, our final score and ranking should be available on the ARRL website and in the December issue of QST magazine.

~Sheldon VA7XNL
SARC 2017 FD Chair

2017 SARC FD Committee

Anton James VE7SSD
Drew Elvins VA7DRW
Jeremy Morse VE7TMY
Jinty Reid VA7JMR
John Brodie VA7XB
John Schouten VE7TI
Kapila Jayaweera VE7KGK
Nell Wrotniak VA7PE
Ralph Wrotniak VA7UB
Rob Farrell VE7UDT
Scott Hawrelak VE7HA
Sheldon Ward VA7XNL
Stan Williams VA7NF
Steve McLean VE7SXM






SURREY
AMATEUR
RADIO CLUB

SARC CLUB EXECUTIVE 2017-2018

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president @ ve7sar.net

VICE PRESIDENT
John Brodie VA7XB
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secretary @ ve7sar.net

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& SEPAR Liaison)
communicator @ ve7sar.net

Sheldon Ward VA7XNL
(Repeater Manager)
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Robert Fishwick VA7FMR
(Net Manager)

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EMAIL ALL DIRECTORS
directors @ ve7sar.net

QRT

John Schouten VE7TI

The New Season

For any organization to be successful they have to be able to attract new and younger members. In a hobby such as ours, where many of the practitioners are getting older, getting new people to pick up the reins can be difficult. We also have to get the word out so that people know we're still around, raise awareness of the services hams can provide, and to inform folks that Amateur Radio is still very viable in this age of pocket push-button technology.

Our web page is one of the means by which we display our 'public face'. If you've been to our website lately, and we hope you have, you may have noticed that it is a bit out of date… a lot out of date in some places. We've been without a webmaster for the past year. No one has stepped forward to maintain it and your Directors either cannot add another portfolio to their current tasks or do not possess web programming skills. I took it upon myself as the Editor of the Communicator to look for a simpler solution to get the club news out. I think I have found it and your club Directors are willing to let me give it a try.

I plan to move all of the news, reviews and link content from the website and leave only a 'landing page'. This will carry our club information including repeater details and other content that does not change. A prominent link will point to the rest of the content, including meeting notes, presentations, weekly news, events, past Communicator issues, etc., which will be transitioned to a more manageable format.

For the past few months I have been experimenting with some alternatives. Microsoft docs.com did not work out as expected. It was to be the repository of changing content. While it was versatile and free, the service is being cancelled, and it was onerous because a visitor either had to have a Microsoft account or had to sign in. A lot of people don't like that. Several other options did not have the features needed.

Since May I have been using blogspot.ca, also free, and with the elements we need to keep our web presence prominent and current. It interfaces well with our social media presence, which includes FaceBook, Twitter, web photo albums, and our YouTube channel.

I expect that it will be several months before this transition is completed but in the meantime the new site is up and running. You will find all the latest club tidbits there and news content between regular Communicator issues—in fact I called it the 'SARC Communicator Digital Edition'. Please visit it and these other SARC sites. Initial feed back is very positive. Let me know what you think.

SARC Blog (The alternate site)
ve7sar.blogspot.ca

Twitter
@ve7sar

FaceBook
SurreyAmateurRadio

Our YouTube Channel
SurreyARC

SARC Photos
tinyurl.com/SARCphoto

73

~ John VE7TI
Communicator Editor

It's September

Its time to get to another season of SARC meetings! Field Day 2017 already seems long ago; welcome back to monthly meetings on the second Wednesday of each month.

Our meeting location continues to be at the Provincial Emergency Operations Centre located at 96th Ave and Green Timbers Way (14292 Green Timbers Way, Surrey) at 7:00 PM. The PREOC has confirmed that, in spite of the forest fires situation, the meeting room is available.

Our guest speaker for this meeting is Don Studney (VE7DS), who will present on the Vimy special event station TM100VIMY and the provincial operation of VE100VIMY. Also Jeanne Wilson (VA7QD) who went to France as an operator; tough assignment. It will be an interesting presentation and discussion.

As we have done for the past several years, we also invite you to bring any Amateur Radio related items for an informal September swap meet. This is your opportunity to get rid of that ~~junk~~ cluttering your basement.

vintage gear

SARC hosts an Amateur Radio net each Tuesday evening at 8 PM. Please tune in to the VE7RSC repeater at 147.360 MHz (+600 KHz) Tone=110.9, also accessible on IRLP node 1736 and Echolink node 496228.

On UHF we operate a repeater on 443.775MHz (+5MHz) Tone=110.9 or IRLP Node 1737.

	SARC Net 20:00 Hrs
1st Tuesday Standby	Drew VA7DRW Dixie VA7DIX
2nd Tuesday Standby	Jinty VA7JMR Sheldon VA7XNL
3rd Tuesday Standby	Rob VE7CZV Vacant
4th Tuesday Standby	Kapila VE7KGK John VA7XB
5th Tuesday Standby	Robert VA7FMR Vacant
Want a turn at Net Control? Contact the SARC Net Manager	

Down The Log…

SARC Monthly Meetings

2nd Wed. (Sept-Jun)
1900 hr at the PREOC
Emergency Mgmt BC
14292 Green Timbers
Way, Surrey, BC

Weekly Club Breakfast

Saturday at 0900 hr
Kalmar Family Restaurant
8076 King George Blvd.
Surrey

SARC Net

Tuesday at 2000 hr local
on 147.360 MHz (+)
Tone=110.9

SEPARS Net

Tuesday at 1930 hr local
on 147.360 MHz (+)
Tone=110.9

VE7RSC Repeaters

2m: 147.360MHz+
Tone= 110.9Hz
IRLP node 1736
Echolink node 496228

1.2m: 223.960 MHz -1.6
Tone=110.9

70cm: 443.775MHz+
Tone= 110.9Hz
IRLP node 1737

We Have A SARC Patch!

These are suitable for sewing on a jacket, cap or your jammies, so you can proudly display your support for the club.

The price is $4 each or three for $10 and they can be picked up at a meeting or the weekly Koffee Klatch.

We thank our sponsors for their SARC support.

Please support them.